SSAB Information Portfolio Contents

Four Month Look Ahead

November

Process Building D&D – moved out to December

Waste Disposition – moved up from December

- ❑ RI/FS Scope
- ❑ Description of Alternatives
- ❑ Waste Streams and Volumes
- ❑ Recycling Criteria

Requirements and Considerations for both On-Site and Off-Site

- ❑ Compliance with other laws (e.g., NHPA, NEPA, Wetlands) and Waivers, if applicable
- ❑ Long term protection of human health and environment
- ❑ Waste Acceptance Criteria

Proposed Post Clean-Up Configuration

- ❑ Overview of post cleanup configuration planning
- ❑ Assumptions for proposed post-cleanup site configuration
- ❑ Draft SODI final configuration map (not ready in November)
- ❑ Master plan for implementation and funding (will be developed after recommendation by engineers made in December)

Cleanup Levels

- ❑ Description of alternatives

December

Process Building D&D

- ❑ Description of Alternatives
- ❑ Scope/Volumes/Waste Streams
- ❑ Protection of Human Health and Environment
- ❑ Compliance with other laws (e.g., NHPA)
- ❑ Short term risk to workers
- ❑ Cost
- ❑ Schedule
- ❑ Impact on site and regional employment

Future Use

- ❑ Updates on previously provided info

Waste Disposition

- ❑ Updates on previously provided info including ecological and archeological studies
- ❑ Short term risk for workers and transportation
- ❑ Cost
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- ❑ Impact on site and regional employment
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January

Waste Disposition

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- ❑ Construction details and impacts
- ❑ Siting of On-Site Disposal Cell
- ❑ Long term monitoring and maintenance requirements
- ❑ Impacts to cultural and natural resources
- ❑ Opportunity for landfill consolidation
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Future Use

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Landfill Consolidation Information

- ❑ Known information – Contents and Volumes
- ❑ Current remedy configuration and performance

February

Landfill Consolidation Information

- ❑ Site conditions and underlying geology
- ❑ Major uncertainties and risks
- ❑ Excavation
  - o Requirements and possible treatment
  - o Cost
  - o Schedule
  - o Benefits
  - o Risks and exposure potential

Future Use

- ❑ Master plan for implementation and funding

WASTE DISPOSITION

RI/FS Scope and Purpose

What is the Scope of the Waste Disposition RI/FS?

The Waste Disposition RI/FS provides supporting analysis of viable alternatives for the Ohio EPA and DOE to make a decision, through the issuance of a Record of Decision, on the appropriate disposal path for the D&D debris, contaminated soil and other wastes generated site-wide from the demolition and environmental cleanup of the Gaseous Diffusion Plant Facilities.

What analysis is reported in the RI/FS Report?

The RI/FS evaluates the current environmental conditions and determines the need for remedial action. Following this determination, the RI/FS assembles alternatives for completing the required remedial actions. To assemble these alternatives, the RI/FS reviews the universe of available technologies that might address individual facets of the required remedial actions. To review these technologies in an orderly manner, the RI/FS divides the expected remedial actions into logical segments called *General Response Actions*. The current draft of the Waste Disposition RI/FS segments the scope of the planned remedial actions into five General Response Actions including:

- No Action,
- Institutional controls,
- Treatment,
- Disposal, and
- Waste packaging and transportation.

All available remedial alternatives represent a combination of these segments.

For each of the General Response Actions, the RI/FS reviews available *technologies and process options* that could be applied to address the specifics of the situation at the site. These process options are put through a series of screening analyses of the options, including analyses for:

- Implementability,
- Cost, and
- Effectiveness.

The process options that pass the screening criteria are used to develop the remedial alternatives for evaluation in the RI/FS. For example, for the General Response Action of disposal, the draft Waste Disposition RI/FS evaluates technologies separately for on- and offsite disposal. For onsite disposal, the RI/FS examines technologies such as above-grade engineered disposal facilities, concrete vaults, consolidation in an existing facility with an engineered cap, and a tumulus for their suitability.

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What Technologies/Process Options are proposed to be screened out and why?

For the current draft of the Waste Disposition RI/FS, the following technologies are proposed to be screened out and eliminated from further consideration:

DISPOSAL IN AN EXISTING ON-SITE LANDFILL

- Proposed to be eliminated from consideration because, given their current location and configuration, it is deemed infeasible to expand existing site landfills to compliantly dispose of the volumes and types of contaminated materials expected to be generated.

DISPOSAL IN A NEW OFF-SITE DISPOSAL FACILITY

- Proposed to be eliminated from consideration because it is deemed infeasible to site and license a new off-site disposal facility in a cost-effective manner or in time frame supportive of project needs. The off-site component of the remedial alternatives will consider only existing commercial and government owned disposal facilities.

WASTE COMPACTOR, SHREDDING, SMELTING AND MACROENCAPSULATION

- Proposed to be eliminated from consideration. These technologies were not carried forward as a part of the waste disposition RI/FS as they are typically applied as a component of waste preparation for waste disposal. These technologies will be examined further in the Process Building RI/FS.

ON-SITE DISPOSAL IN CONCRETE VAULTS

- Proposed to be eliminated from consideration due to the extreme cost with reduced implementability with no improvement in long term effectiveness. Such a facility typically does not utilize a lining system and therefore would not meet required regulatory requirements without a waiver. A lining system could be installed at further added cost.

ON-SITE DISPOSAL IN A TUMULUS (STABILIZED CONTAINERIZED WASTE ON A CONCRETE PAD COVERED WITH AN ENGINEERED CAP)

- Proposed to be eliminated due to the significant increase in the required size and cost of such a facility with no improvement in long term effectiveness. As above, such a facility does not employ a lining system and would therefore not meet required regulatory requirements without a waiver. A lining system could be installed at further added cost.

ON-SITE DISPOSAL IN AN EXISTING FACILITY COVERED BY AN ENGINEERED CAP

- Proposed to be eliminated based on a more detailed analysis. Significant concerns exist with the implementability of the technology and the inability to meet both regulatory siting (i.e. depth to groundwater) and design (i.e. lack of lining system) without a waiver. The lack of a lining system and the depth to groundwater under the existing process buildings present significant concerns on the long term performance of the facility attributed to the potential for contaminant migration to groundwater.

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WASTE DISPOSITION

Description and Scope of Alternatives

What disposal alternatives are being evaluated in the Waste Disposition RI/FS?

The Waste Disposition RI/FS is presently under development. The current strategy for the RI/FS is to evaluate the following remedial action alternatives:

- No action (required to be considered)
- On-site disposal with some off-site disposal
- All off-site disposal

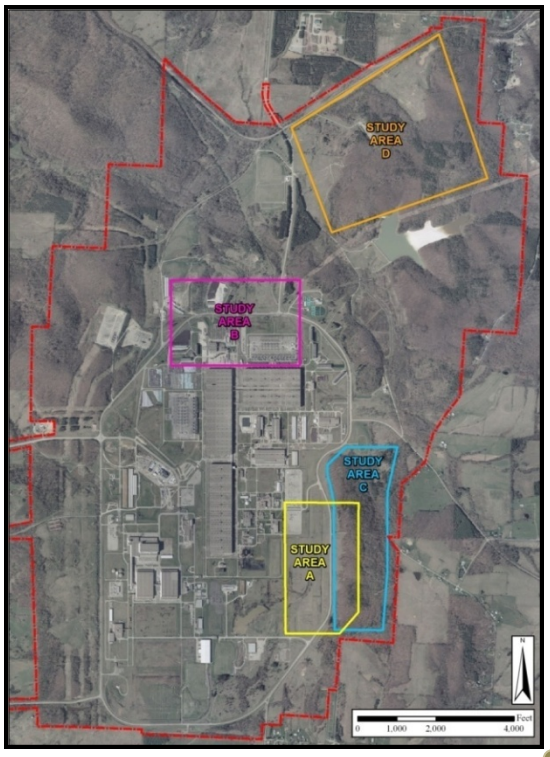
What technology / process options are being retained as viable technologies?

The necessary technical analyses for the RI/FS are underway. The preliminary analyses conducted to date support the following technologies:

- On-site Disposal Alternative - construction of a new engineered disposal cell on-site. Waste that does not meet waste acceptance criteria for the on-site disposal cell (OSDC) would be shipped off-site.
- Off-site Disposal Alternative - disposal at existing disposal facilities such as Nevada National Security Site (NNSS) or EnergySolutions.

What locations are being evaluated for an OSDC?

Based on previous site wide siting studies, four potential locations for an on-site disposal cell on the PORTS site are being evaluated in the RI/FS (see map). While the Record of Decision issued at the conclusion of the RI/FS will ultimately finalize the decision of whether on-site disposal will be acceptable, the final decision on the exact location of such a disposal facility (if selected) will made as part of the design process. The RI/FS will select a single site location only for purposes of completing the necessary analyses to compare the alternatives identified above. This selected site is termed the representative site.



To establish the representative site the RI/FS is compiling available geologic data and conducting additional geotechnical investigations where needed. Based on analyses of the data, the preliminary RI/FS proposes narrowed the siting review to two of the four sites, Site C and Site D. This is being done

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because of the superior geologic conditions at these two sites.

On the basis of the initial comparison of these two sites, Site D has tentatively been selected as the representative location for purposes of evaluating the On-Site Disposal Alternative in the RI/FS. Field studies at Sites D will continue to gather more data.

What does the on-site disposal alternative involve?

- Facility siting and design,
- Site preparation and facility construction,
    - construction support facilities,
    - waste water treatment plant,
    - haul road,
    - cell liners, and
    - monitoring wells.
- Facility operations ,
    - waste characterization,
    - transporting waste to OSDC and staging waste near the OSDC to support placement,
    - waste placement and compaction as required in design, and
    - collecting and treating wastewater from OSDC.
- Facility closure,
    - capping,
    - support facility dismantlement, and
    - regrading the site.
- Post-closure leachate collection/treatment till the flow diminish, surveillance and maintenance, and
- Off-site disposal of above-WAC D&D wastes.

What are the representative off-site disposal sites?

Consistent with the On-site option, the Off-site Disposal Alternative also utilizes representative disposal sites for purposes of completing the technical analyses and comparison of the remedial action alternatives. The current draft version of the Waste Disposition RI/FS has adopted the following site as representative off-site disposal locations:

- EnergySolutions Utah– licensed commercial disposal facility located in Clive, Utah currently operational for the receipt of low level radioactive (LLW) waste and mixed low level radioactive (MLLW, containing hazardous waste constituents and radioactive constituents) waste

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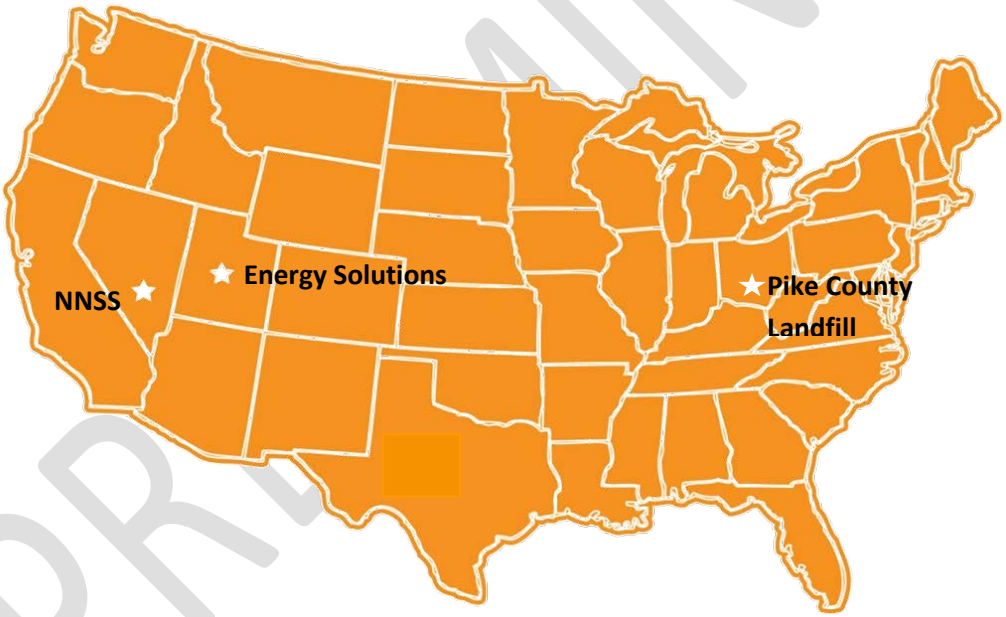
- DOE Nevada National Security Site (NNSS) – DOE owned facility located in Nevada currently operational for the receipt of LLW, MLLW and classified wastes,
- Pike County Landfill – 5 miles from PORTS ("clean" waste only)

Use of these sites as the representative off-site disposal locations in the RI/FS does not constitute selection of the site for the receipt of project wastes. Final selection of the disposal locations will be during the follow-on design process.

What does off-site disposal involve?

- Characterizing the waste,
- Certifying the waste meets waste acceptance criteria for specific off-site disposal facility,
- Packaging the waste,
- Transporting the waste by truck or rail following DOT requirements, and
- Disposing the waste off-site.



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WASTE DISPOSITION

Waste Streams and Volumes

What are the current waste streams categories in the preliminary RI/FS?

Consistent with the DFF&O, the preliminary Waste Disposition RI/FS must define the anticipated waste streams and provide an estimate of the volumes being considered for disposal either offsite or in an On-Site Disposal Facility. The necessary analyses to finalize such volume projections are presently underway. Consistent with the DFF&O the RI/FS will evaluate the waste generated from the D&D of the Gaseous Diffusion Facilities including any soil generated incidental to their removal and waste/soil generated from any necessary cleanup of the environmental media. Consistent with a previous recommendation of the SSAB, the Waste Disposition RI/FS will also evaluate the anticipated wastes and volumes from the possible consolidation of some or all existing landfills should this option be selected and approved. For purposes of segmenting the anticipated waste to support the required analyses, the preliminary RI/FS utilizes the following waste categories:

- Debris and Miscellaneous Waste
- Concrete Waste
- Process Gas Equipment (PGE)
- Incidental soils from building foundation and underground utility removal
- Metals with high potential to recycle
- Soil from RCRA soil clean-up program
- Landfill debris (note – there is no decision on the part of the DOE to excavate any existing landfills)
- Landfill soil

It should be noted that the above types of waste would include various regulatory categories of waste previously discussed at past SSAB meetings including low level radioactive waste (LLW), mixed low level radioactive (MLLW), PCB contaminated LLW, classified waste, radiologically contaminated asbestos-containing material (ACM). Other categories may also be added if an alternative involving excavation of existing landfills is selected.

How are waste volumes being estimated at this time?

The volume estimate evolves from:

- Field studies;
- Process knowledge;
- Lessons learned from other D&D projects of similar DOE facilities;
- Facility walk downs, including measurements of building structures and components; and
- Engineering studies, including review of as-built drawings.

The volumes are estimates of the in-place quantities of waste that would be generated under future D&D and environmental media cleanup activities based on best professional judgment, data, and engineering drawings.

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WASTE DISPOSITION

Waste Streams and Volumes

What could change these estimates?

The process to finalize the volume estimates is currently underway. Based on the current draft estimates changes in the following could have significant impacts on the volume estimates:

- Changes in recycling criteria
- Waste swell - As waste is generated, especially soils, the material expands around 10 to 30 percent. An as-generated volume will be considerably higher than an in-place volume estimate. This swell is considered in the required capacity calculations for the onsite disposal facility (if selected) or for offsite disposal (if selected)
- Greater soil contamination than estimated or the selection of significantly lower cleanup criteria
- Issuance of a decision to excavate contaminated soil from areas of groundwater contamination
- The volume projection for the possible excavation of landfills is limited to a select number of the existing landfills and is a rough estimate and therefore subject to significant revision.

What are the current waste volume estimates?

In order to properly evaluate the alternatives the preliminary plan is to evaluate the range of possible waste volumes including a reasonable low and high forecasted volume.

Assumptions for the Reasonable Lower End Volume Estimate

- ✓ Includes debris from building demolition and soil that must be excavated in order to remove the building and necessary foundations.
- ✓ Soil from RCRA soil clean-up program.
- ⊗ Assumes that a decision is made to not excavate and consolidate any of the existing landfills.

Assumptions for the Reasonable High End Volume Estimate

- ✓ Includes debris and soil from Lower End Volume Estimate.
- ✓ Assumes the landfills within perimeter road on the south side of the site will be excavated. The decision has not yet been made to take any additional actions on these existing landfills.

Waste Form	**Estimated Volume (cubic yards)**	
	Low-End Estimate	**High-End Estimate**
Debris and Miscellaneous Waste	540,000	540,000
Concrete Waste	530,000	530,000
Process Gas Equipment (PGE)	320,000	320,000
Metals with high potential to recycle	110,000	110,000
Soil from RCRA soil clean-up program	600,000	600,000
Landfill debris	0	300,000
Landfill soil	0	300,000
Total	**2,100,000**	**2,700,000**

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Assumptions included in the draft RI/FS preliminary waste volume estimate:

- Process gas equipment will be disposed without recycle.
- Only limited metal from contamination area can be cost effectively recycled due to restrictions, the current condition of the metal, and/or the levels of contamination.
- The 600,000 cubic yards of landfill soil and debris wastes included in the high-end case come from the 3 existing landfills and 2 closure units (X-749, X-749A, X-749B, X-231A & B) inside the site perimeter road. The volume assumes 50% soil and 50% debris and does not include landfills or closure units outside perimeter road.
- The 600,000 cubic yards of soil comes from the RCRA corrective actions that were deferred until D&D.
- Soil volume does not include any excavation of soil to address current areas of groundwater contamination.

If on-site disposal is selected, what are the current projected amounts that would go on-site or off site?

The waste breakdown would be designed to ship off-site the radionuclides that present the highest risk to human health and the environment off-site while leaving low risk material on-site. Technetium-99 is the most mobile radionuclide present in GDP waste and thus it presents the greatest risk to humans or the environment. A balanced approach as currently estimated would leave the low radiological risk (but larger volume) waste on-site and ship the highly concentrated radiological risk (but small volume) waste off-site. A small percentage (estimate currently at about 10%) of Tc-99 curies, present in lower concentrations across a larger volume of waste, would remain on-site.

On-Site Disposal Alternative		
Waste Form	**Volume (cubic yards)**	
	Off-Site and Recycled - Not Placed in OSDC	**Placed in On-Site Disposal**
Debris, Miscellaneous Waste, Concrete and PGE	60,000	1,000,000
Process Gas Equipment (PGE)	40,000	280,000
Metals with high potential to recycle	110,000	0
Soil from D&D and RCRA soil clean-up program	0	600,000
Landfill debris	0	300,000
Landfill soil	0	300,000
Borrow fill soil required for debris placement	0	2,260,000
Total	**210,000**	**4,740,000**
Waste Volume by Percentage	**4%**	**96%**
Tc-99 Activity (Curies) by Percentage	**90%**	**10%**

The volumes are preliminary and are subject to change as the technical development and review of these estimates are concluded. The borrow fill soil is an estimate of the additional volume of soil required to place the estimated debris in a compliant manner in an On-Site Disposal Cell, if selected. This additional volume of

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soil is necessary to ensure the long term stability of the disposal facility and is based on an industry standard of a 2:1 ratio of soil to debris. This quantity of soil could potentially come from off site, an on-site borrow area, useable spoils from the construction of the on-site disposal facility itself, and the potential excavation of contaminated soil associated with known areas of groundwater contamination.

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WASTE DISPOSITION

Recycling Criteria

How is recycling and reuse addressed in the preliminary Waste Disposition RI/FS ?

The current internal draft version of the Waste Disposition RI/FS includes the potential for recycling and reuse of site materials as a component of both remedial action alternatives (not including the "no action" alternative). It is planned that the description of the remedial alternatives would use the same wording that appeared in the Balance of Plant EE/CA in regards to recycling and reuse, with some modification to account for the scope of the Waste Disposition RI/FS. Consistent with the EE/CA, the remedial alternatives in the preliminary RI/FS would not make a specific commitment on the amount of recycling, state that recycling and reuse would be conducted when it is in the best interests of the government considering economic and other considerations, and acknowledge the potential for recycling and reuse to reduce the volume of material requiring disposal. As a result of being a component of each preliminary alternative, recycling and reuse would therefore not be a subject of the detailed analysis and comparison of the alternatives in the RI/FS, and would therefore be proposed to be a component of the selected remedy.

The preliminary RI/FS projects the volume of materials that will require disposition from the D&D and environmental cleanup of the gaseous diffusion facilities and any associated legacy contamination of the environmental media at the site. This initial estimate is still undergoing review. This initial volume projection conservatively estimates that approximately 110,000 cubic yards of metal debris from the facility may be viable for recycle and reuse. This volume includes:

- Carbon steel,
- Copper wire and other metals in facilities outside the radiological boundaries,
- Inventoried materials stored outside and within warehouses and buildings that can be potentially radiologically scanned, economically and free released, and
- Some metals within the radiological boundary that have the potential to be cost effectively cleaned and released for recycle or reuse.

What process will DOE use to make a decision to recycle or reuse material?

DOE will conduct a cost benefit analysis on materials at the facility that are no longer needed to support the site mission. This cost benefit analysis will evaluate whether recycling or reusing a given waste stream or material would be in the best overall interests of the government. Following this determination, the DOE will have its D&D contractor implement the decision of the analysis.

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What will be considered in the analysis for Recycle or Reuse?

The cost benefit analysis conducted by DOE will consider some or all of the following factors, depending on the material type and its location, in arriving at a decision as to whether recycling in in the best interests of the government.

- Benefits
  - Dollars recovered from the final recycle or reuse of the material.
  - Costs avoided from the characterization, inventorying, documenting, handling, treating, packaging, and transporting of the materials for final disposition.
  - Costs avoided from the final disposal of the material either in an on-site disposal facility, or from the offsite disposal of the material in a low level waste or hazardous waste landfill or in a local sanitary landfill, (if radiologically clean).
- Costs
  - Any incremental costs to segregate the materials from the facilities in advance of the D&D process to support recycle or reuse.
  - Any incremental costs to radiologically survey, decontaminate (if necessary) and release the material to support recycle or reuse.
  - Cost to load and transport the material to the recycler.
  - Costs to disposition the material through the federal excess process.
- Other considerations
  - Impact on the efficient execution of the overall D&D project.
  - Potential economic benefit to the community.
  - Presence of other hazardous materials including asbestos and PCBs and the potential risk presented by these materials.

Who ultimately makes the decision to recycle or reuse a material?

The DOE will make the final decision, in part, based on the input prepared by its contractors in the development of the economic cost benefit analyses.

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WASTE DISPOSITION

Compliance with Other Laws and Waivers

How do other laws apply to work under CERCLA?

CERCLA requires that remedial actions must attain federal standards, requirements, criteria, limitations, or more stringent state standards determined to be legally applicable or relevant and appropriate requirements to the circumstances at a given site. Applicable or relevant and appropriate requirements are also referred to as ARARs. In order to be "applicable", a state or federal requirement must directly and fully address the hazardous substance, the action being taken, or other circumstances at a site. A requirement which is not applicable may be "relevant and appropriate" if it addresses problems or pertains to circumstances similar to those encountered at a Superfund site. In addition to ARARs, another category known as "to be considered", or TBCs, includes advisories, guidance, and proposed standards issued by federal or state governments. TBCs are not potential ARARs because they are not legally enforceable federal and state requirements.

ARARs only apply to on-site actions for the CERCLA decision. Off-site activities must comply with the laws and regulations of the activity's location.

What kinds of rules apply to the On-Site Disposal Alternative?

There are currently over 200 rules and regulations identified that might be considered ARARs or TBCs for disposal of waste onsite. These ARARS apply to activities like disposal cell siting, design, operation, maintenance, waste characteristics, protection of natural and cultural resources and more. There are approximately 40 ARARs that apply just to OSDC siting.

What are some of the key ARARs for On-site Disposal?

WETLANDS

- Ohio EPA substantive requirements for a Section 401 Water Quality Certification affect wetlands alteration, dredging, or debris removal from an aquatic resource. In addition, 10 *CFR* 1022 requires that the impacts of any actions taken in wetlands be considered and avoided wherever possible or mitigated.

THREATENED AND ENDANGERED SPECIES

- DOE will evaluate Federal- and State of Ohio-listed threatened, and endangered species and their applicability to the RI/FS. As appropriate, ARARs will be included for threatened or endangered species RI/FS.

CULTURAL RESOURCES

- Cultural resources include historic buildings/structures, and prehistoric sites such as farmsteads considered important to a culture, subculture, or community for scientific, traditional, religious, or any other reason. When these resources meet any one of the National Register Criteria for Evaluation (36 *CFR* Part 60.4), they may be termed historic properties and thus eligible for inclusion on the

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National Register of Historic Places (NRHP). If avoidance or minimization is not possible for those NRHP-eligible properties, DOE will coordinate development of a mitigation strategy.

WASTE ACCEPTANCE

- Waste must be characterized and managed according to Ohio laws and regulations for hazardous and solid waste, federal Toxic Substances Control Act (TSCA), DOE Order, and Clean Air Act (CAA) requirements, among other requirements. Requirements also exist for temporary storage of waste prior to placement.

WASTEWATER

- Wastewater from an on-site disposal cell, including leachate and storm water that contacted the waste must be managed and treated appropriately to ensure surface water quality standards are not exceeded.

TSCA CHEMICAL LANDFILL REQUIREMENT

- TSCA contains cell design requirements for wastes containing polychlorinated biphenyls (PCBs) at concentrations ≥ 50 parts per million (ppm). TSCA also specifies minimum thickness for a synthetic liner is used and specifies that the bottom of the liner must be located 50 ft above the historical, high groundwater mark and must prohibit any hydrologic connection between the site and any surface water.

DOE ORDER REQUIREMENTS

- DOE Order 435.1 specifies a design to be effective for 1,000 years. The DOE Order requirements, which are more stringent than those of RCRA, include 24-hour security provisions.

Are any waivers to these rules anticipated?

Currently being evaluated.

What are the ARARs for Off-site Disposal?

ARARS only apply to on-site actions. Actions off-site must comply with the laws and regulations of their location. The following requirements do affect work at the DOE Portsmouth site for off-site disposal actions.

PACKAGING, TRANSPORTATION, TREATMENT and DISPOSAL

- Any wastes transferred off site or transported in commerce along public right-of-ways must meet the requirements including packaging, labeling, marking, manifesting, placarding for hazardous materials, and meet the waste acceptance criteria of the receiving facility

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WASTE DISPOSITION

Long -Term Protectiveness

What is the long-term protectiveness evaluation?

The criteria "long-term protectiveness of human health and the environment" considers protectiveness of the alternatives as well as long term environmental effects. For purposes of the RI/FS evaluation, long term impacts are considered to begin when the last of the waste has been disposed in its final location.

What protectiveness criteria are being analyzed for the disposal alternatives?

- Permanence of the alternative
- Contaminant removal
- Cell penetration
- Long term performance
- Long term effectiveness of institutional controls
- Future land use

How do the disposal alternatives compare in long term protection?

The **preliminary** analysis suggests the following.

	On-Site Disposal	**Off-Site Disposal**
Permanence	Designed to DOE requirements for 1,000 years protection and modeling indicates protection beyond 1,000 years.	Designed to DOE requirements for 1,000 years protection.
Contaminant Removal	Additional lower cost disposal capacity may allow cost benefit to clean individual sites to lower standards.	High cost of off-site shipment may cause less aggressive clean-up approach at individual sites.
Cell Penetration	The On and Off-Site alternatives are evaluated as the same.	
Institutional controls	Both facilities use institutional controls that would restrict access to the site and prohibit actions that could penetrate the cover and expose the waste.	
Future land use	Land use within the permanent institutional control boundary would remain restricted.	Other Areas at the Portsmouth site used during construction and operation could be released for other uses after closure.

What long term environmental effects are being evaluated?

- Air Quality
- Surface Water Quality
- Groundwater quality
- Land and animal resources
- Wetlands and aquatic resources

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WASTE DISPOSITION

Waste Acceptance Criteria

What is Waste Acceptance Criteria (WAC)?

Waste Acceptance Criteria (WAC) are the qualitative and quantitative limits set to determine what types of wastes can or cannot be placed in a disposal facility. WAC specifies acceptable waste types and the upper limits of chemical concentrations and radioactivity levels in acceptable wastes. Adherence to the WAC ensures long-term performance as designed and regulatory compliance as permitted of the facility. WAC also describes necessary physical conditions of incoming wastes for safe handling during placement and long-term stability of the waste layer post-closure.

What level of protection would OSDC WAC provide?

Currently the performance criteria for an OSDC considered in the On-Site Alternative are to be achieved through site selection, design/construction, and waste acceptance criteria (WAC) are:

- For carcinogens, the Excess Lifetime Cancer Risk (ELCR) is to be in the range of 1×10^{-6} to 1×10^{-4} (less than 1 case in 1,000,000 to 10,000 people) for the first 1,000 years after closure.
- For non-carcinogens, the Hazard Index (HI) is to be ≤ 1 for the first 1,000 years after closure. The hazard index (HI) takes into account that different substances can target and harm the same organ or organ systems. Exposures that produce a HI of less than 1.0 will likely not cause adverse health effects over a lifetime of exposure.
- Protection of groundwater and surface water to chemical-specific ARAR levels defined in the ARARs (Applicable, Relevant and Appropriate Requirements) beyond the OSDC footprint.
- Proper protection of sensitive ecological receptors.

How would risks to humans and the environment be calculated to determine WAC?

Laboratory and field tests of materials and computer modeling are conducted to evaluate:

- How rain water may infiltration into an OSDC,
- How contaminants may leach from waste disposed in an OSDC and move through soil or rock that is unsaturated (not fully wet) into the underlying groundwater zone or nearby surface water bodies,
- How contaminants may be transported in groundwater beneath an OSDC to potential receptor wells or discharged to surface water bodies. These locations of wells and surface water bodies are called points-of-assessment. It is at these points that potential exposure to humans or other receptors could occur,
- What WAC would be protective of potential receptors at these locations?

PRELIMINARY

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WASTE DISPOSITION

Waste Acceptance Criteria

What would be included in on-site WAC?

Ohio EPA Director's Final Finding's and Orders (DFF&O) for D&D requires:

- Waste evaluation and characterization needed to demonstrate compliance with the WAC
- Physical size and condition that waste must have
- Any packaging allowances and requirements
- Safe handling requirements
- How the waste can be transported across the site
- Performance-based WAC and, if transport of radionuclides from cell to potential receptors is shown during modeling, numerical radionuclides-specific WAC.
- Performance-based WAC and, if transport of chemicals from cell to potential receptors is shown during modeling, numerical chemical-specific WAC.

Other elements that may become part of an OSDC WAC could include:

- Negotiated Administrative Prohibitions (e.g. not accepting off-site wastes)
- Requirements to meet certain ARAR/TBC
- Quality Assurance / Quality Control and record-keeping requirements
- Security driven requirements

What operational assumptions are being made to determine on-site WAC?

Some of the current assumptions for the On-Site Alternative in the preliminary Waste Disposition RI/FS are:

- DOE would operate and close an OSDC within an approximately 20-year period.
- After closure the OSDC leachate flow is projected to eventually stop within 10 to 20 years. DOE would maintain and operate the leachate collection and treatment system for at least 30 years following final closure or until the leachate flow stops.
- DOE would maintain institutional controls and conduct necessary monitoring and maintenance activities for 100-years post-closure.
- The OSDC will provide long term protectiveness to human health and environment for at least 1,000 years after institutional controls end.

What wastes would be excluded from on-site disposal acceptance?

No liquid wastes or wastes from other sites would be accepted. Other exclusions are to be determined.

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FUTURE USE

Overview of post cleanup configuration planning

What work is being done to plan for the post cleanup configuration?

Fluor-B&W Portsmouth has entered into a contract with a civil engineering firm to create an objective post cleanup configuration of the site for consideration. This team is evaluating the topography and existing capabilities, capacities, and remaining useful life of site infrastructure, such as:

- Well fields and raw water supply systems
- Water treatment plant and distribution system
- Wastewater collection, treatment and discharge system
- High Pressure Fire Water supply and distribution system
- Culverts, storm sewers, retention ponds, and overall site drainage systems
- Electrical supply and distribution systems
- Access and site roadway systems
- Railroad transportation system

The team will explore water and wastewater treatment options onsite and offsite, reviewing the economic benefits and practicality of utilizing local utility providers, such as Pike Water, Scioto Water, and the Village of Piketon, to serve the infrastructure needs of the site. The end product will be a report that includes a Post Cleanup Site Configuration Map and recommendations for how to achieve the desired end result for each utility system and transportation infrastructure evaluated.

Who is participating in post cleanup configuration planning?

FBP is working closely with DOE and the community reuse organization (CRO), Southern Ohio Diversification Initiative (SODI), to develop the post cleanup configuration. Local elected officials, the Site Specific Advisory Board (SSAB), and SODI, have provided input in the form of letters, resolutions, and recommendations regarding redevelopment of the site. The Team is creating a post cleanup configuration plan that can be implemented as Decontamination and Decommissioning progresses over the next 10 years to support the desired future use of the site.

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FUTURE USE

Assumptions for Proposed Post-Cleanup Configuration

What assumptions are being made to prepare a post cleanup configuration plan?

The following assumptions to prepare a post-cleanup configuration plan have been made:

- Redevelopment will take place on the gaseous diffusion plant footprint.
- No significant impacts to the existing footprints of American Centrifuge Plant (ACP) and the Depleted Uranium Hexafluoride (DUF6) Facilities.
- All contaminated groundwater plumes will be remediated.
- Onsite landfills located within the existing site perimeter roadway will be evaluated for consolidation.
- Demolition of the existing water treatment plant, wastewater treatment plant, and high voltage switchyard.
- Infrastructure and site redevelopment will support economic development projects.
- Infrastructure that is removed will be replaced either onsite or offsite under the D&D mission to support ACP and DUF6 facilities and future redevelopment of the site.

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CLEANUP LEVELS

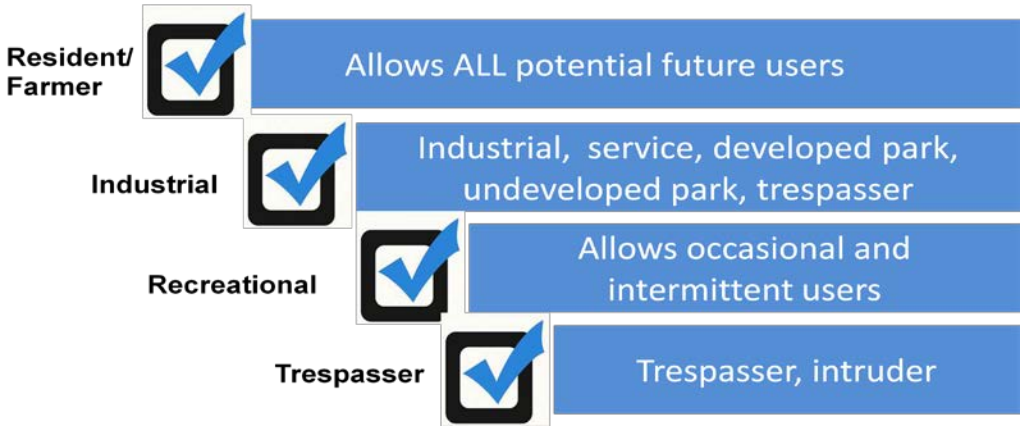
Future User–

Description of Alternatives

What is a Future User and How Does a Potential Future User Impact Cleanup Levels?

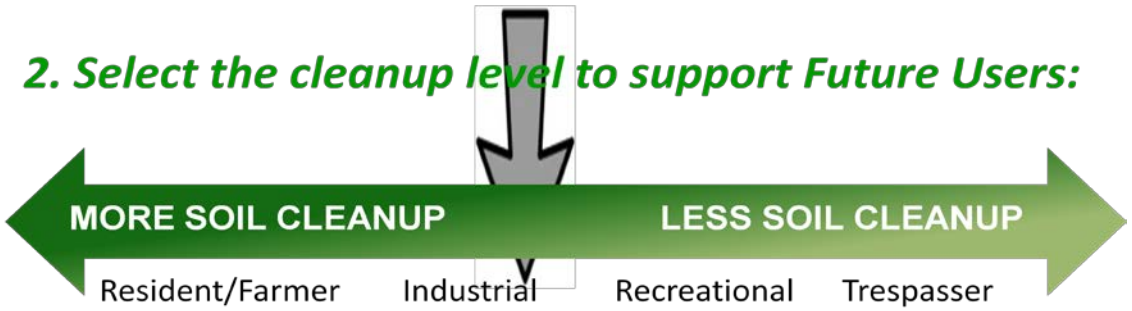
The future user is a term used to describe the future occupants or users of a remediation site. The potential future user is a key part of developing soil cleanup goals through the risk assessment process. EPA requires environmental cleanup at a site if the risk to a hypothetical future user of developing cancer from site contaminants is greater than 1 in 10,000 (1×10^{-4}). Determining the potential future user for the Portsmouth Site is a key part of developing soil cleanup goals through the risk assessment process. As an example, a hypothetical resident/farmer would have longer and more frequent contact with soil and thus requires more soil cleanup compared to other potential future users.

1. Select the type of desired Future User:



The future use cleanup level is not necessarily the required future use. Any use to the right of the chosen future use cleanup level on the continuum above would also be acceptable. For example, a site cleaned up to support Industrial future users would also be protective and acceptable for recreational use and trespassers. It would not, however, allow residential / farming future use.

2. Select the cleanup level to support Future Users:



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